

WHAT IS CLAIMED IS:

1. A method for processing up to a plurality of radiographic images of a subject, said method comprising the steps of:

capturing at least two visible light images of the subject, two or more of
5 the visible light images in correspondence to at least one radiographic image, the at least two visible light images being captured by one or more visible light cameras, each visible light camera in a known geometric relation to a radiographic source;

calculating radiographic geometry of each radiographic image relative to the radiographic source and the subject through stereoscopic analysis of the at least
10 two visible light images and through reference to the known geometric relation between the one or more visible light cameras and the radiographic source; and

generating three-dimensional radiographic information on the subject by processing the up to a plurality of radiographic images based on the radiographic geometry calculated in said calculating step.

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2. A method according to Claim 1, wherein the three-dimensional radiographic information includes stereoscopic x-ray images.

3. A method according to Claim 1, wherein the three-dimensional
20 radiographic information includes a tomosynthetic image at a designated slice depth into the subject.

4. A method according to Claim 1, wherein the three-dimensional radiographic information includes a plurality of tomosynthetic images at a plurality
25 of designated slice depths into the subject, the method further comprising the step of reconstructing a volume of the subject by combining the plurality of tomosynthetic images.

5. A method according to Claim 1, further comprising the step of
30 registering one or more of the visible light images with the three-dimensional radiographic information.

6. A method according to Claim 1, wherein the known geometric relation between the one or more visible light cameras and the radiographic source is adjustable.

5 7. A method according to Claim 1, wherein the three-dimensional radiographic information includes a radiographic volume reconstructed from the plural radiographic images.

10 8. A method according to Claim 1, further comprising the steps of:
generating a surface topography of the subject by processing the visible light images; and
registering the surface topography with the three-dimensional radiographic information.

15 9. A method according to Claim 1, wherein at least two visible light cameras are used and wherein a first visible light camera is in a known geometric relation to the radiographic source and a geometric relation of a second visible light camera to the radiographic source is determined based on the known geometric relation of the first visible light camera to the radiographic source and a known
20 geometric relation of the first visible light camera to the second visible light camera.

 10. A method according to Claim 1, wherein the three-dimensional radiographic information includes a zoom factor for correcting magnification error in at least one radiographic image.

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 11. Computer-executable process steps stored on a computer-readable medium, said computer-executable process steps for processing up to a plurality of radiographic images of a subject, said computer-executable process steps executable to perform a method comprising the steps of:

30 capturing at least two visible light images of the subject, two or more of the visible light images in correspondence to at least one radiographic image, the at

least two visible light images being captured by one or more visible light cameras,
each visible light camera in a known geometric relation to a radiographic source;

calculating radiographic geometry of each radiographic image relative to
the radiographic source and the subject through stereoscopic analysis of the at least
5 two visible light images and through reference to the known geometric relation
between the one or more visible light cameras and the radiographic source; and
generating three-dimensional radiographic information on the subject by
processing the up to a plurality of radiographic images based on the radiographic
geometry calculated in said calculating step.

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12. Computer-executable process steps according to Claim 11, wherein
the three-dimensional radiographic information includes stereoscopic x-ray images.

13. Computer-executable process steps according to Claim 11, wherein
15 the three-dimensional radiographic information includes a tomosynthetic image at a
designated slice depth into the subject.

14. Computer-executable process steps according to Claim 11, wherein
the three-dimensional radiographic information includes a plurality of tomosynthetic
20 images at a plurality of designated slice depths into the subject, the method further
comprising the step of reconstructing a volume of the subject by combining the
plurality of tomosynthetic images.

15. Computer-executable process steps according to Claim 11, further
25 comprising the step of registering one or more of the visible light images with the
three-dimensional radiographic information.

16. Computer-executable process steps according to Claim 11, wherein
the known geometric relation between the one or more visible light cameras and the
30 radiographic source is adjustable.

17. Computer-executable process steps according to Claim 11, wherein the three-dimensional radiographic information includes a radiographic volume reconstructed from the plural radiographic images.

5 18. Computer-executable process steps according to Claim 11, the method further comprising the steps of:

generating a surface topography of the subject by processing the visible light images; and

10 registering the surface topography with the three-dimensional radiographic information.

19. Computer-executable process steps according to Claim 11, wherein at least two visible light cameras are used and wherein a first visible light camera is in a known geometric relation to the radiographic source and a geometric relation of a
15 second visible light camera to the radiographic source is determined based on the known geometric relation of the first visible light camera to the radiographic source and a known geometric relation of the first visible light camera to the second visible light camera.

20 20. Computer-executable process steps according to Claim 11, wherein the three-dimensional radiographic information includes a zoom factor for correcting magnification error in at least one radiographic image.

21. A computer-readable medium that stores computer-executable
25 process steps, the computer-executable process steps for processing plural radiographic images of a subject, the computer-executable process steps executable to perform a method comprising the steps of:

capturing at least two visible light images of the subject, two or more of the visible light images in correspondence to at least one radiographic image, the at
30 least two visible light images being captured by one or more visible light cameras, each visible light camera in a known geometric relation to a radiographic source;

calculating radiographic geometry of each radiographic image relative to the radiographic source and the subject through stereoscopic analysis of the at least two visible light images and through reference to the known geometric relation between the one or more visible light cameras and the radiographic source; and

5 generating three-dimensional radiographic information on the subject by processing the up to a plurality of radiographic images based on the radiographic geometry calculated in said calculating step.

22. A computer-readable medium according to Claim 21, wherein the
10 three-dimensional radiographic information includes stereoscopic x-ray images.

23. A computer-readable medium according to Claim 21, wherein the
three-dimensional radiographic information includes a tomosynthetic image at a designated slice depth into the subject.

15 24. A computer-readable medium according to Claim 21, wherein the three-dimensional radiographic information includes a plurality of tomosynthetic images at a plurality of designated slice depths into the subject, the method further comprising the step of reconstructing a volume of the subject by combining the
20 plurality of tomosynthetic images.

25. A computer-readable medium according to Claim 21, the method further comprising the step of registering one or more of the visible light images with the three-dimensional radiographic information.

25 26. A computer-readable medium according to Claim 21, wherein the known geometric relation between the one or more visible light cameras and the radiographic source is adjustable.

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27. A computer-readable medium according to Claim 21, wherein the three-dimensional radiographic information includes a radiographic volume reconstructed from the plural radiographic images.

5 28. A computer-readable medium according to Claim 21, the method further comprising the steps of:
 generating a surface topography of the subject by processing the visible light images; and
 registering the surface topography with the three-dimensional radiographic
10 information.

 29. A computer-readable medium according to Claim 21, wherein at least two visible light cameras are used and wherein a first visible light camera is in a known geometric relation to the radiographic source and a geometric relation of a
15 second visible light camera to the radiographic source is determined based on the known geometric relation of the first visible light camera to the radiographic source and a known geometric relation of the first visible light camera to the second visible light camera.

20 30. A computer-readable medium according to Claim 21, wherein the three-dimensional radiographic information includes a zoom factor for correcting magnification error in at least one radiographic image.

 31. A system for processing up to a plurality of radiographic images of a
25 subject, comprising:
 a radiographic source and sensor for acquiring the up to a plurality of radiographic images of the subject;
 one or more visible light cameras in a known geometric relation to said radiographic source for capturing at least two visible light images of the subject;
30 and

a processor for calculating radiographic geometry of each radiographic image of the subject through stereoscopic analysis of the at least two visible light images and through reference to the known geometric relation between the one or more visible light cameras and the radiographic source, and generating three-
5 dimensional radiographic information on the subject by processing the up to a plurality of radiographic images based on the radiographic geometry,

wherein two or more of the visible light images are captured in correspondence to at least one radiographic image.

10 32. A system according to Claim 31, wherein the three-dimensional radiographic information includes stereoscopic x-ray images.

33. A system according to Claim 31, wherein the three-dimensional radiographic information includes a tomosynthetic image at a designated slice depth
15 into the subject.

34. A system according to Claim 31, wherein the three-dimensional radiographic information includes a plurality of tomosynthetic images at a plurality of designated slice depths into the subject, said processor further for reconstructing
20 a volume of the subject by combining the plurality of tomosynthetic images.

35. A system according to Claim 31, said processor further for registering one or more of the visible light images with the three-dimensional radiographic information.
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36. A system according to Claim 31, wherein the known geometric relation between said one or more visible light cameras and said radiographic source is adjustable.

37. A system according to Claim 31, wherein the three-dimensional radiographic information includes a radiographic volume reconstructed from the plural radiographic images.

5 38. A system according to Claim 31, said process further for generating a surface topography of the subject by processing the visible light images, and registering the surface topography with the three-dimensional radiographic information.

10 39. A system according to Claim 31, wherein the three-dimensional radiographic information includes a zoom factor for correcting magnification error in at least one radiographic image.

15 40. A system according to Claim 31, wherein at least two visible light cameras are used and wherein a first visible light camera is in a known geometric relation to the radiographic source and a geometric relation of a second visible light camera to the radiographic source is determined based on the known geometric relation of the first visible light camera to the radiographic source and a known geometric relation of the first visible light camera to the second visible light camera.